EG-03-88
28 JAN 1988

MEMORANDUM FOR: Director, Office of Information Technology

FROM:

         Chief, Engineering Group

SUBJECT: ALA Request for Coax Connectivity

1. Attached is a paper which attempts to quickly address the request forwarded by ALA for coax attachments for their current 170 PCs.

2. There has been significant concern by OIT personnel providing this estimate as to our joint ability to do this job given our current workload, schedule and planned NBCC activity. Plans for freezes in computer duties area affected.

3. ALA has no requirement for high bandwidth services. The request for coax is based on perceived outstanding problems by ALA management and is not supported by documentation or trouble logs. The coax alternative has some extremely difficult decisions for a production office to make, and many single points of failure. It presents support and network management issues for the office. It is not provable that it will result in better availability. The expense is considerable and the office configuration is inflexible.

4. Sound technical guidance would recommend against this alternative.

Attachment
  As Stated

1. ALA has requested that 170 PCs in the 3F and 4F corridor of Hqs building be connected to the Northside Computer Center via coax. This paper attempts to address all the issues related to that connection. It approximates both cost and schedule for the connections. It also discusses several possible options for the coax connection and issues related to each.

2. The most critical item to note is that OIT, as an office, has not adopted hardwired, channel attached devices as a primary, fully supported architecture. There are many support issues that have not been addressed in the 24 hours we have had this request.

3. Facts and issues related to a channel attached connection are as follows:

Option 1: 170 devices, 7 channel attached controllers in ALA space.

Hardware and Connections

1. 7 controllers must be purchased -- cost $42K, and housed in ALA, 3 on floor 4, 4 on floor 3.

2. Four 3044 channel extenders, 2 for each floor must be purchased – cost $28K.

3. Coax cabling and conduit from controllers to 120 terminals (54 conduit/ panduit runs already exist in ALA though cabling only will still be required). $120K +

4. Potential for two fiber runs to be required one from 3F and 4F to NCC, ($32K) one from 3F and 4F to NBCC ($77K). If this change cannot occur before the NCC move to NBCC, only one run will be required. cost $109K

5. Cost of adding UPS bus to 3F and 4F area for 7 controllers ---$75K (UPS should be required as a controller power hit can and has brought the system down).

6. Removal of 170 LANMARK instruments and replacement with 170 ITE12 + non-data instruments. Cost $46K + $170K (incl. labor)

7. Augmentation of switch 2 in old building for 170 more non-LANMARK telephones than baseline and surveys reflect. cost $141K

Total H/W cost $731K

Major Issues/Problems in Option 1

1. The 7 controllers have no backup. When they are down, switchability is
    not an option.

2. The 3044s are also single points of failure. A 3044 failure will take out
    70 devices on the fourth floor or 100 on the third floor.

3. All of the controllers will be attached to SYF, the only system in NCC with
    channel address space to accummodate them. SYF is also the only system
    within correct cable lengths for 3044 connection. If SYF fails, there is
    no available TBAR connectivity in NCC to switch controllers. ALA will be
    down for the duration of the failure.

4. There is no SYF bridge in the new building. The bridge machine will have
    to be the proposed VTAM front end.

5. If backfill causes ALA to vacate its space, there will be connectivity
    issues at that time, and increased costs as well.

6. A heat survey has to be done by OL for air handling and air conditioning
    impact.

7. Power has to be available in that corridor. UPS should be available as
    well.

8. ALA has to get a waiver from OL on the conduit runs to and through their
    area as their is a current HN prohibiting such activity.

9. There are over 100 controllers in the new building scheduled for PBX
    attachment. Architecture is being worked, but not final and may impact
    this option.

10. B/B segment has to identify open pipes for fiber runs.

11. Network management is a tough problem that needs more detail.

Option 2: 170 devices, 7 channel attached controllers in NCC space

Hardware and Connections

Item 1, 3, 6, 7 apply as in option 1. cost $519K

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Also

1. Purchase 14 (7 pair) of fiberoptic multiplexors 7 to be installed in
   ALA, 7 in NCC connected to 7 controllers also in NCC. cost $74K
   (incl. labor)

2. Run 7 fiber and conduit runs from 3F and 4F to NCC and from 3F and 4F
   to NBCC. cost $28K + 77K

                        Total cost $698K

                Major Issues/Problems in Option 2

1. Can't locate any new devices in NCC until a Comten is freed up and
   removed. Devices have to be factored into move strategy.

2. Single points of failure introduced once again, controllers, fiber muxes,
   SYF.

3. Items on SYF bridge, backfill, 100 NBCC controllers B/B segment, and
   network management apply.

Timing on Option 2

    Best estimate is 6 months including hardware orders and installation
activity. Comments on computer center move timing apply.

Option 3: 170 devices, 14 remotely attached 3174 controllers in ALA space

Hardware costs

Item 3, 6, 7 apply - cost $477K

1. Purchase 14 3174 controllers and house in ALA space. cost $84K

2. Comten mims would have to be converted to DLC for support of devices.
   From 2 - 14 MIMs will be affected depending on speed of link from Comten
   to controllers. cost $28K

                        Total cost $589K

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Issues/Concerns with Option 3

1. SNA has to be available in NCC.

2. SNA Comten in NCC may have no backup for some length of time.

3. This option impacts OIT strategy to free up Comtens in Northside
    and adversely affects capability for backup on the SNA Comten in
    [STAT] [   ] - Corporate Data Program has no backup Comten for a long time.

4. Devices are attached as remotes, so speed issues may be a concern.

Timing

    Less than six months but dependent on SNA schedule for Comtens.

Option 4: 2 token ring LANS, housed in 3F and 4F areas respectively

    This is a longer term, more strategic installation.

Hardware costs

Items 2, 3, 4, 6, 7 apply   cost $614K

1. Purchase two 3174 controllers with token ring capability - cost $12K

2. Purchase 170 token ring cards and 170 workstation programs. - cost $34K

3. Other token ring hardware. $50K

Total Cost $710K

Issues/Concerns

1. One year is probably earliest we can provide support to a system like
    this.

2. EG resources to work this project are very limited during building move.

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